

## NEW DESCRIPTIONS

### BARILIINE FISHES OF MANIPUR, INDIA, WITH THE DESCRIPTION OF A NEW SPECIES: *BARILIUS LAIROKENSIS*<sup>1</sup>

LAIKRAKAM ARUNKUMAR<sup>3</sup> AND HIJAM TOMBI SINGH<sup>2</sup>

(With one text-figure)

**Key words:** *Barilius lairokensis* sp. nov., Manipur

The systematic account of bariliine fishes of the genus *Raiamas* and *Barilius* hitherto known from the state of Manipur, India, namely *R. bola* (Hamilton-Buchanan), *R. guttatus* (Day) and *B. barila* (Ham.-Buch.), *B. barna* (Ham.-Buch.), *B. bendelisis* (Ham.-Buch.), *B. dogarsinghi* Hora, *B. gatensis* (Valenciennes), *B. tileo* (Ham.-Buch.) and *B. vagra* (Ham.-Buch.) are given. A new species, *B. lairokensis* has been described here. It resembles *B. barila* in its external morphology, but differs from it in the depth of body, non-extended maxilla and predorsal scales.

#### INTRODUCTION

Manipur is a hill-bound state in northeastern India. The drainage system of this state may be grouped into three, namely the Barak, the Manipur and the Yu river systems. The Barak river system drains the western sides of this state and finally joins the Brahmaputra river. Both, the Manipur river system which drains the central valley and the Yu river system which drains the major hilly eastern sides of this state, directly join the Chindwin river of Myanmar. Each of the three river systems has its own distinctive ichthyofauna.

The bariliine fishes of the genera *Raiamas* and *Barilius* are widely distributed throughout India, Sri Lanka, Myanmar, Shan State, Thailand, China, Cambodia (Khmer Republic), Korea, Honshu Island of Japan, Amur basin, Africa, Malay Peninsula and Southeast Asian Archipelago.

The description of *Barilius dogarsinghi* by Hora (1921) and the collection of *Barilius guttatus* by Menon (1952) are the most important

records of bariliine fishes in Manipur. Menon (1954, 1974), Singh and Tombi Singh (1985) and Tombi Singh (1992) did not give a precise picture of the localities and distribution of these fishes in Manipur.

A detailed survey of the ichthyofauna of the state was carried out. Fifteen specimens of *Barilius* were collected from the Yu drainage system, and when compared with known species of this genus, appeared to be hitherto undescribed. These specimens are described in this communication as a new species, *Barilius lairokensis*.

#### MATERIAL AND METHODS

Fishes were collected from hill streams of the three drainage systems of Manipur, namely the Barak river, the Manipur river and the Yu river, with the help of local fishermen using: by-side tracking, dewatering shallow portions of the streams, with nets, hook and line. Identification of the species was done with reference to Barman (1985), Day (1989), Talwar and Jhingran (1991) and Howes (1980, 1983). The meristic and morphometric measurements were made following standard techniques described by Jayaram (1981), Barman (1985), Menon (1987) and Talwar and Jhingran (1991). The specimens are deposited in the Manipur University Museum

<sup>1</sup>Accepted October, 1997

<sup>2</sup>Department of Life Science,  
Manipur University, Canchipur 795 003, Manipur, India.

<sup>3</sup>Present Address: Department of Zoology,  
Mayai Lambi College, Yumnam Huidrom,  
Manipur 795 008, India.

of Fishes (MUMF). Uncatalogued bariliine fishes of MUMF were also observed.

## RESULTS

Systematic accounts of the bariliine fishes of Manipur of the genus *Raiamas* (2 species), *Barilius* (7 species) and a new species, *Barilius lairokensis*, along with their distribution in Manipur are given below:

***Raiamas bola*** (Ham.-Buch.)

*Cyprinus bola* Ham.-Buch. 1822, *Fish. Ganges.*, 274, 385 (type locality: Brahmaputra river).

**Material:** 5 exs. Uncat. MUMF. 2 from Barak river at Barak Bridge, 169-248 mm total length, 5.ix.1995. Uncat. MUMF. 3 from Chakpi stream at Serou, 196-248 mm total length, 19.vi.1996. 1 Uncat. MUMF. 142 mm total length, coll. R. Singh.

**Local name:** Ngawa

**Distribution:** Manipur: Barak river system, Manipur river system.

**Remarks:** *R. bola* is an endangered fish (Menon 1990). Kulkarni (1992) reported that it was presently rather rare in its natural habitat and may become extinct.

***Raiamas guttatus*** (Day)

*Opsarius guttatus* Day, 1889, *Proc. Zool. Soc. Lond.*, 620 (type locality: Irrawady river, from Prome to Mandalay, Burma).

**Material:** 5 exs. Uncat. MUMF. 2 from Sekmai stream, Pallel, 50-165 mm total length. 3 from Chakpikarong, 162-200 mm total length, 14.x.1981, coll. W.V., 2 exs. Uncat. MUMF from Imphal river at Khongnangfeidekpi, 175-182 mm total length, 6.iv.1989, coll. L.A., 2 exs. Uncat. MUMF. 1 from Lokchao river and 1 from Moreh Bazar, 192-212 mm total length, 17.x.1992, coll. L.A.

**Local name:** Ngawa-thangong.

**Distribution:** Manipur: Manipur river system, Yu river system.

**Remarks:** Largest and tastiest bariliine fish in Manipur. It is available in the central valley of Manipur, exhibiting upward migration from the Chindwin river of Myanmar.

***Barilius barila*** (Ham.-Buch.)

*Cyprinus barila* Ham.-Buch. 1822, *Fish. Ganges.*, 267, 384 (type locality: Northern Bengal).

**Material:** 9 exs. Uncat. MUMF. 6 from Makru river, 93-98 mm total length, 3 from Taret stream, 93-102 mm total length, 24.ii.1985, coll. M.G. Sharma., 3 exs. Uncat. MUMF, from Imphal river at Kangpokpi, 97-99 mm total length, 7.vii.1989, coll. L.A., 2 exs. Uncat. MUMF, from Thoubal river at Yairipok, 94-163 mm total length, 15.vii.1989, coll. L.A.

**Local name:** 'Ngawa' in Meitei/Manipuri language, 'Bakba' in Maring Naga language.

**Distribution:** Manipur: Barak river system, Manipur river system and Yu river system.

**Remark:** Mukerji (1934) discussed the conspecific relations of *B. barnoides* and *B. barila*.

***Barilius barna*** (Ham.-Buch.)

*Cyprinus barna* Ham.-Buch. 1822, *Fish. Ganges.*, 268, 384. (type locality: Yamuna river, Brahmaputra river).

**Material:** 18 exs. Uncat. MUMF. 3 from Chakpi stream, 120-122 mm total length, 2.viii.1985, 6 from Makru river, 121-124 mm total length, 15.ii.1986, 9 from Litan stream, 120-125 mm total length, 7.vi.1986, coll. M.G. Sharma., 3 exs. Uncat. MUMF, from Irang river, 122-23 mm total length. 21.iii.1987, coll. R. Singh., 1 ex. Uncat. MUMF, from Taret river 95 mm total length, 22.x.1992, coll. L.A.

**Local name:** Ngawa

**Distribution:** Manipur: Barak river system, Manipur river system and Yu river system.

**Remark:** Sexual dimorphism of this species was reported by Mukerji (1934). *B. jayarami* is the synonym of *B. barna* (Talwar and Jhingran, 1991).

***Barilius bendelesis*** (Ham.-Buch.)

*Cyprinus bendelisis* Ham.-Buch. 1807, *Journey in Mysore*, 345, 32, (type locality: Vedawati stream, head waters of Krishna river near Heriuru, Mysore).

**Material:** 11 exs. Uncat. MUMF, from Barak river, 71.5-125 mm total length, 12.i.1985, coll. M.G. Sharma, 1 ex. Uncat. MUMF, from Barak river at Duifain stream, southern side of Zhiliad lake, 32 mm total length, 8.ii.1997, coll. L.A. and Tombi Singh.

**Local name:** Ngawa/Ngawa-phurithungbi.

**Distribution:** Manipur: Barak river system - Senapati stream at Karong, Leimatak river, Irang river, Makru river, Barak river at Nungba, Zhiliadjang, Bangaijang, Keimai.

**Remarks:** Its distribution in Manipur is restricted to Barak river system. Talwar and Jhingran (1991) synonymised *B. howesi* with *B. bendelisis*.

***Barilius dogarsinghi*** Hora

*Barilius dogarsinghi* Hora, 1921, *Rec. Ind. Mus.*, 191, 3 (type locality: Etok stream near Chandrakhong and Sekmai stream near Pallel, Manipur).

**Material:** 15 exs. Uncat. MUMF, 14 from Chakpi stream, Mombi, 50-105 mm total length, 16.ix.1981, 1 from Sekmai stream, Pallel, 16.v.1981 (Condition bad), coll. W.V., 14 exs. Uncat. MUMF, 10 from Taret stream, 50-95 mm total length. 17.x.1992, 4 from Lokchao stream, 100-115 mm total length. 15.xii.1995, coll. L.A.

**Local name:** Ngawa / Ngawa-apakpi.

**Distribution:** Manipur: Manipur river system - Thoubal river at Yairipok. Yu river system: Tarest stream at Saibol, Lokchao river at Lokchao, Lairok Maru.

***Barilius gatensis*** (Valenciennes)

*Leuciscus gatensis* Valenciennes, 1844, *Hist. nat. poiss.*, 309, 503. (type locality: peninsular India).

**Material:** 4 exs. Uncat. MUMF, from Chakpi stream, Chakpikarong, 90-123 mm total length, 14.x.1981, coll. W.V., 1 ex. Uncat. MUMF from Imphal river at Khongnangfeidekpi, 85 mm total length, 5.viii.1988, coll. L.A.

**Local name:** Ngawa.

**Distribution:** Manipur: Manipur river system.

***Barilius tileo*** (Ham.-Buch.)

*Cyprinus tileo* Ham.-Buch. 1822, *Fish. Ganges.*, 276, 385 (type locality: Kosi river, Uttar Pradesh).

**Material:** 2 exs. Uncat. MUMF, from Jiri river at Jiri, 150-175 mm total length, 2.ii.1991, coll. R. Singh.

**Local name:** Ngawa.

**Distribution:** Manipur: Barak river system.

***Barilius vagra*** (Ham.-Buch.)

*Cyprinus vagra* Ham.-Buch. 1822, *Fish. Ganges*, 269, 385 (type locality: Ganges river at Patna).

**Material:** 2 exs. Uncat. MUMF, from Imphal river at Motbung, 95-106 mm total length, 16.vi.1993, coll. L.A., 1 ex. Uncat. MUMF, from Jiri river at Jiribam. 97 mm total length, 21.vii.1994, coll. R. Singh.

**Local name:** Ngawa.

**Distribution:** Manipur: Barak river system, Manipur river system - Sanahal Lokchao, Litan stream at Litan, Thoubal river at Yairipok.

*Barilius lairokensis* sp. nov.  
(Fig. 1)

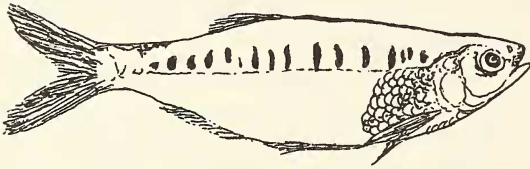


Fig. 1: *Barilius lairokensis* sp. nov.  
MUMF 3700/1A, Holotype, 87 mm, SL,  
Lairok Maru. Stream of the Yu drainage system.

**Material:** 15 exs. Holotype-MUMF 3700/1A, TL 110 mm, SL 87 mm, from Lairok Maru, Moreh, Chandel district, Manipur, 17.x.1992. Coll. Laifrakpam Arunkumar. Paratypes-MUMF 3700/14A, TL 106 mm, SL 81-82 mm, from Moreh Bazar, Moreh, Chandel district, Manipur, 17.x.1992, Coll. L.A.

**Local name:** Ngawa.

**Diagnosis:** A *Barilius* having the combination of following distinct characters: 14 to 16 dark lateral bands. Predorsal scales 21; lateral line scales 44, lateral line transverse 9.5/3.5; 2 pairs of barbels; depth of body 25.97 to 29.94; 19.84 to 23.64; and length of head at the end of lateral operculum 25.31 to 25.97; 19.84 to 20.00 in the percentage of standard length and total length respectively. Height of caudal peduncle 56.49 to 64.51 in its length. Maxilla just reaches the anterior margin of orbit.

**Description:** Br. 3 to 4, D. ii. 8, P. I. 13, V. I. 8, A. ii. 11, C. 19. Body shallow, laterally compressed, mouth moderate, rostral and maxillary barbels short. Tip of snout and lower jaw poorly tuberculated. Dorsal fin placed

entirely in advance of anal fin. Pectoral fin is less than the length of head at the lateral end of operculum. Caudal fin forked, lower lobe longer than the upper lobe. Scales moderate. Lateral line downwardly curved.

Proportional measurements of holotype and paratypes (in parentheses): Length of head of occiput 14.55 (13.21 to 14.16) in the percentage of total length and 18.83 (17.30 to 18.31) in the percentage of standard length. Predorsal length 56.49 (57.47 to 58.13), prepelvic length 52.91 (50.76 to 52.63), preanal length 75.18 (71.94 to 74.62), length of dorsal fin 19.56 (19.53 to 19.76), length of pectoral fin 19.56 (20.74 to 21.00), length of pelvic fin 13.79 (13.42 to 13.58), length of anal fin 14.94 (13.09 to 15.30), length of upper caudal fin 22.98 (23.20 to 24.17), length of lower caudal fin 26.45 (25.31 to 28.86), width of body at dorsal fin origin 12.65 (10.97 to 11.11) and width of body at anal fin origin 9.19 (8.53 to 8.64) in the percentage of standard length respectively. Length of head at occiput 72.99 (69.66 to 71.42), length of snout 31.84 (28.57 to 32.14), diameter of eye 27.32 (26.80 to 27.42), interorbital distance 27.32 (27.92 to 33.33), length of pectoral fin 77.51 (76.92 to 81.30), depth of head at occiput 81.96 (79.42 to 79.33), width of head at nares 27.32 (23.80 to 28.57), width of head at neck 45.45 (42.91 to 47.51), width of mouth 31.84 (29.80 to 32.57), length of rostral barbel 9.09 (8.76 to 9.52), and length of maxillary barbel 13.64 (14.76 to 15.52) in the percentage of length of head at the end of lateral operculum respectively. Distance from pelvic to anal opening 95.23 (88.49 to 95.23) in the percentage of distance between pelvic and anal fin origin.

**Colour:** Dorsal fin blackish. Tip of caudal fin black and of other fins pale white with no markings. Dorsal greenish-brown. Whitish ventrally. Lateral bands do not touch lateral line. Two black spots are present in the back of caudal peduncle in mature specimens.

**Remarks:** *Barilius lairokensis* sp. nov. differs from *B. barila* in having greater depth of body (25.97% to 29.94% vs. 20.83% to 21.73% in standard length), fewer predorsal scales (21 vs. 22), extension of maxilla (just reaching vs. extends to below anterior third of orbit) and extension of lateral bands (not reaching vs. reaching lateral line).

**Etymology:** The specific name of the fish is derived from the type locality Lairok Maru stream.

## DISCUSSION

Hora (1921) doubted the inclusion of *B. dogarsinghi* in the present genus *Barilius* because of the absence of the symphyseal knob in the lower jaw. Singh and Tombi Singh (1985) wanted to create a subgenus for *B. dogarsinghi*. *B. guttatus* was at first regarded as a new record from India (Singh and Tombi Singh 1985). Tombi Singh (1992) recorded *B. tileo* as a new record from Manipur.

The bariliine fishes of Manipur may be divided into two main genera, viz., *Raiamas* and

*Barilius*. The genus *Barilius* of Manipur may also be further divided into two groups, namely *barila* group and *gatensis* group according to the number of barbels, development of tubercles, short or long jaws and depth of body. *B. barna*, *B. gatensis* and *B. tileo* belong to the *gatensis* group, while *B. barila*, *B. bendelisis*, *B. dogarsinghi*, *B. vagra* and *B. lairokensis* sp. nov. belong to the *barila* group.

*Raiamas guttatus* is found in the Manipur river system and the Yu river system only of Manipur. *B. bendelisis*, *B. gatensis* and *B. lairokensis* sp. nov. are the important distinctive bariliine fishes distributed in the three different river systems of Manipur, namely Barak river, Manipur river and Yu river respectively.

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